

01-148: Copper River Steelhead and Rainbow Trout

Investigator(s): Doug Fleming, ADF&G Sport Fish Division, 1300 College Rd., Fairbanks 99701 (459-7252); and Copper River Native Association, Drawer H, Copper Center, 99573 (822-5241)

FY2001 Budget: \$168,200 **Project Dates:** June 2001 – May 2002

Geographic Area: Gulf of Alaska

Information Type: Stock Status and Trends

Issue Addressed: Steelhead trout in the Copper River drainage represent the northernmost distribution of this species in North America. Mixed stocks of adult steelhead pass upstream from the Gulf of Alaska through Copper River commercial, subsistence and sport fisheries to complete their life cycle. Little information exists about rainbow trout and steelhead in much of the Copper River Basin. Steelhead harvests reported by subsistence fishers suggest that undocumented spawning stocks exist. However, it is believed that most upper Copper River stocks are sparsely populated, and are best described as “fringe” populations. No past or current information is available to characterize upper Copper River rainbow trout and steelhead in terms of population sizes and their genetic diversity or uniqueness between upper Copper River or other Alaskan populations. Taken together, this information is needed for the continued, long-term viability of these populations and fisheries they support.

Study Objectives:

1. To assess the abundance of several known spawning populations of rainbow and steelhead;
2. To collect baseline genetic information on Upper Copper River rainbow trout and steelhead using samples collected from various areas.

Project Description: This project is intended to estimate the abundance of spawning steelhead in two known spawning locations. The abundance of pre-spawning steelhead from several known spawning populations (Gulkana and Hanagita River) will be assessed using underwater video methods. Samples will also be collected from these fish for DNA analysis. Abundance of spawning steelhead will be compared to harvests to estimate maximal exploitation and determine whether further study is warranted. This project will be designed, planned, reviewed and executed according to ADF&G, Sport Fish Division’s operational planning process (see Fisheries 18(2): 6-12).

Consultations Completed / Potential for Capacity Building: The Copper River Native Association (CRNA), Chitina Village Corp., and local National Park Service were consulted and are supportive of this project. CRNA intends to participate in all phases. Opportunities for capacity building include the local hiring of assistants to work with SF biologists, plus a local liaison support role for building, through community meetings, local understanding, support, participation, and information flow from the start to finish of this project.

Deliverables / Products: Periodic reports of progress will be summarized annually and shared locally and regionally. The final results of the project will be documented in an Alaska Department of Fish and Game, Sport Fish Division, Fishery Data Series report. An annual one-day fisheries workshop will be held in Copper Center for representatives from the region’s eight villages to learn about steelhead biology, including presentation of the results from ongoing research efforts in the region.

Performance Ability: The Alaska Department of Fish and Game, Sport Fish Division has a well developed process of fisheries research planning, execution, and reporting. The primary investigator has a M.S. degree in fisheries and over 10 years of experience in planning and conducting fisheries stock assessment research in remote areas of Alaska with the ADF&G. Much of this work has focused on Arctic grayling and rainbow trout stock assessment and life history studies, including mark-recapture experiments and radiotelemetry studies.

Recommendation:

This project should be funded as modified. Little is known about the population biology of Copper River steelhead. They are harvested in the subsistence fishery and are likely of low abundance since they are on the northern-most edge of their range. At question is the cost of any work directed at steelhead in relation to their importance and incidence in the subsistence fishery. As originally proposed, this project would have provided a fairly complete assessment of steelhead in the drainage. Unfortunately, the cost was high (in excess of \$500K over three years). Upon request, the PI's scaled back the project objectives and cost. As modified, this project would provide funding for weirs on the two known spawning populations (Gulkana and Hanagita rivers). This provides the ability to compare spawning abundance and annual harvest and estimate maximal exploitation. If sufficiently low, additional assessment will not be necessary. As modified; project objectives, study design, data collection, analysis, reporting, and budget are sound. The PI's have a proven track record. This project has a high degree of partnership in that CRNA is a collaborator and directly funded.

Justification:

As originally proposed, this project proposes to assess spawning populations and exploitation of steelhead. There are no immediate regulatory issues for Copper River steelhead and steelhead were not identified as an issue by the RAC. This proposal addresses an agency concern for a data gap for the northernmost distribution of this species. As proposed, the project was very expensive given the management application. The PI proposed five phases to this project including: a tagging study to estimate abundance and exploitation in the subsistence fishery; radio tagging to identify spawning areas; assessment of two known (and presumed significant) spawning locations; estimation of subsistence harvest; and development of a genetic baseline. In general, study design, methodology, and analytical procedures are sound. Because of the likely low abundance, estimation of abundance and exploitation may not prove feasible. Upon request, the PI submitted a reduced budget to estimate spawning abundance for the two known spawning populations (Gulkana and Hanagita rivers). Additionally, sample collection for genetic baseline is a small addition to this work and included. Bi-directional passage through the weir will be assessed through underwater videography. At the end of the 3-year study, spawning abundance for these two populations would be compared to estimates of harvest to estimate a maximal exploitation. A final report is specified; however an annual progress report (December) should be added. As modified, the budget is appropriate for the proposed work. The PI's clearly have the technical and administrative expertise to successfully complete this project. Consultations have taken place. CRNA is a collaborator in this project and directly funded.